Analysis of Expansion of Access to Care
Through Use of
Telemedicine and Mobile Health Services

TELEMEDICINE POLICY: COVERAGE AND PAYMENT

by

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TELEMEDICINE: COVERAGE AND PAYMENT

A. INTRODUCTION

Report 3 under this contract dealt with quality assurance, utilization review, coverage, and payment policy for telemedicine (Grigsby, Barton, Kaehny et al., 1994). The present manuscript has as its focus several issues related to coverage and payment policy. Our intent was to examine the issues in somewhat more depth than was done previously. Toward that end, a draft manuscript was prepared and discussed with several individuals knowledgeable in payment policy. Their comments have been integrated into this version of the report.

The task of writing this paper was complicated by the fact that there exist few data upon which recommendations may be made. Because telemedicine programs are only now being established, and because patient volumes are low, it has not been possible to collect valid data regarding the costs or effectiveness of telemedicine. Even relatively simple questions remain unanswered. For example, is the work done by a specialist using telemedicine equivalent to the work done by that same specialist in the course of a face-to-face patient contact? Without answers to such elementary questions, it is not clear how to code telemedicine services for Medicare billing purposes.

As noted in the report to Congress of the Physician Payment Review Commission (PPRC, 1994), "the limiting factor for good coverage decisions today is the lack of high-quality information on which to base them. Because health plans generally do not gather primary data to use in technology assessments, the assessments they perform depend heavily on the evidence available. They typically find that few, if any, relevant rigorous studies have been done" (p. 223). It is thus not surprising that this should be the situation *vis a vis* telemedicine, especially given that most existing telemedicine programs have been in operation for less than three or four years, and given the sudden development of powerful market forces pushing for expansion and approval of telemedicine.

B. GENERAL ISSUES IN COVERAGE POLICY

1. New Technologies and Health Care Expenditures

History suggests that coverage of telemedicine will increase Medicare expenditures. The introduction of new health care technologies tends to be followed by their rapid proliferation and subsequent increases in spending for medical services. Moreover, it is reasonable to anticipate that telemedicine will increase access to care, further adding to Medicare costs. As the purchaser of health care services, Medicare is faced with the challenge of covering safe and effective medical care while avoiding excessive expenditures. This involves the establishment of a coverage and reimbursement structure that is fair to providers and patients without being too costly to Medicare.

2. Conceptual Difficulties with Telemedicine Coverage

Unlike most technological advances in medicine, telemedicine is not used for the diagnosis or treatment of specific conditions. Instead, telemedicine is a medium via which a wide range of services may be provided (Perednia and Allen, 1995). In effect, it extends the reach of the provider's office. It offers nothing that cannot be done currently by a physician in his or her office, and in fact it is capable of providing fewer services than conventional medical care. Most of these are diagnostic or consultative in nature, with the possible exception of certain psychiatric services.

In principle, if telemedicine is primarily an extension of the provider and not a new diagnostic or therapeutic tool, it logically ought to be treated like conventional medical care. There are, however, several complicating factors. First, from the perspective of resource-based relative value, it is not clear whether the work performed by the telemedicine consultant is identical to the work performed by a conventional consultant. Further, when the primary care physician is involved in a consult along with the consulting specialist, this differs substantially from the current pattern of practice, and the relative value of the work performed by either provider in that case has not been established. Second, because the effectiveness of telemedicine has not been demonstrated for a number of applications, we cannot assume *a priori* that telemedicine and conventional service delivery are identical in this regard. A third difficulty lies in the fact that telemedicine is not a unitary phenomenon, but a wide spectrum of services conducted utilizing a range of technologies and transmission media.

One thorny issue is the similarity of telemedicine to telephone consultation. The use of the telephone alone to provide medical care is currently not reimbursed by Medicare. Presumably this is in large part a function of HCFA's need to control costs, and concern about abusive utilization of telephone consultation. Nonetheless, there are data suggesting that telephone consultation may be an effective means of providing at least some types of health care (Bertera and Bertera, 1981; Conrath, Dunn, Bloor, and Tranquada, 1977; Sorum, 1994; Wasson, Gaudette, Whaley, et al., 1992).

In the work completed under this contract, we have defined telemedicine as the use of telecommunications technology to provide medical care to persons who are at some distance from the provider (Grigsby, Kaehny, Schlenker, et al., 1993). This definition would include the use of the telephone alone to provide health care services. It seems probable that, using the transmission of still images in conjunction with telephone contact, physicians might be able to bill for a telemedicine contact even though the still image contributed little or nothing. In this manner, it would be possible to circumvent the lack of payment for phone calls, while essentially conducting business via telephone.

The basic issue is a conceptual one. The work of Conrath et al. (1977) suggested that telephone contact alone was as effective for most purposes as the use of moving or still images. It may be that as much as 75% to 80% of telemedicine could be conducted by the telephone--a technology that is certainly cost-effective. If that is the case, then addition of video images, whether still or moving, may yield only a small incremental improvement in quality of care at a substantially increased cost. It could be expected that this cost would be passed on, in some way, to the payer.

Whether or not Medicare decides to address the use of the telephone alone to provide medical care, it should be clear that defining telemedicine as the use of telecommunications technologies other than the telephone is arbitrary, and may have a number of significant practical ramifications. Especially in very remote frontier areas, where patient volumes will always be too low to support the unsubsidized use of video imaging technology, it is important to consider the relative merits of increased access, the use of expensive but officially sanctioned technology (videoconferencing), and low-technology solutions (telephone).

In some cases, telemedicine provides services that substitute for something provided under conventional medical care. Teleradiology, for example, may merely substitute for another way of doing radiology. On the other hand, many telemedicine consults will involve services that would not have been provided without telemedicine. Rural patients with chronic illnesses, for example, may be followed more closely by subspecialists. This distinction may be important in the process of establishing coverage policy, since the former will ostensibly not increase costs and the latter is likely to do so.

C. COVERAGE POLICY AND TELEMEDICINE

1. Safety and Effectiveness of Telemedicine

In the first report under this contract (Grigsby, Kaehny, Schlenker, et al., 1993) we concluded that, while the published research literature supported the use of teleradiology for many applications, there were few data showing the effectiveness of telemedicine consultation. In the second report, we discussed a series of case studies of telemedicine programs, during which we observed telemedicine consultation and discussed telemedicine with users of the system. We found considerable provider support for the technology, but also observed that professional acceptance of telemedicine is not universal. A minority of providers, most of whom had used or were currently using telemedicine, expressed reservations about the effectiveness of the technology. Nevertheless, the majority of providers interviewed expressed the opinion that they could perform their work quite adequately via telemedicine. In our opinion, the provision of coverage for a number of telemedicine applications seems to be warranted.

Subsequent to our literature review and case studies, we concluded that various telemedicine applications could be categorized with respect to the degree to which they were considered effective. We conceptualized these applications as falling into several classifications reflecting the amount of support that existed for their effectiveness. In Report 4 (Grigsby, Schlenker, Kaehny, et al., 1994) under this contract, we suggested a second taxonomy that was based on processes of care. In making decisions about coverage and payment, both of these taxonomic schemes may be of some assistance.

2. Should Telemedicine Services be Covered and Reimbursed Under Medicare?

Too many aspects of telemedicine remain investigational, and too little is known about the possible effects of telemedicine on the health care system, to permit a blanket endorsement of the technology. Moreover, as noted above, telemedicine is not a monolithic phenomenon. Nonetheless, certain telemedicine applications appear to be effective and their coverage seems reasonable.

Following are suggestions for applications that might be covered. This listing, which combines the taxonomic schemes from Reports 2 and 4, is not intended to be exhaustive.

a. Applications Widely Accepted as Effective: It seems reasonable that telemedicine applications in this category should be covered. They appear to be effective and for the most part provide improved access to care, especially for persons in frontier, remote, or poor rural areas. While one might argue that no services should be covered until their medical effectiveness has been demonstrated by means of randomized controlled trials, we reject this position as too extreme.

Applications in this category include the following:

- Medical and surgical follow-up with established patients
- Medication checks with established patients
- Brief periodic consultation with specialists regarding chronic disorders (e.g., diabetes, Parkinson's disease, end stage renal disease)
- Emergency evaluation of trauma patients
- Evaluation of medical emergency patients
- Triage and pretransfer arrangements
- Provision of primary care to remote areas where no physician is available
- Short-term management of acute medical illness in established patients
- Transmission of certain diagnostic images or data (EKG, EEG, nuclear medicine scans)

b. Applications that are Probably Effective, but with Unknown Effects: Telemedicine applications in this category are probably effective, but research on this issue needs to be carried out. Here, the options range from denial of coverage until adequate research has been completed through full approval. Although a reasonable argument could be made for either of these positions, in our opinion some form of coverage may be warranted. Programs providing these services could be required to collect data on outcomes, effectiveness, and complications.

Applications in this category include the following:

- Extended diagnostic workups over a period of two or more telemedicine sessions
- Management of self-limited conditions such as pregnancy
- Short-term management of acute medical illness in new patients
- Routine consultation and second opinions
- Physical, speech, and occupational therapy for rehabilitation
- Psychiatric evaluations
- Emergency/crisis psychotherapy
- Transmission of dermatologic images

c. Applications that Require Basic Research: Decisions concerning applications in this category would probably need careful consideration, perhaps on a case-by-case basis. We do not recommend full coverage for these services. In many cases (e.g., robotic surgery), the application is clearly experimental, not obviously safe or effective, and should not be covered. Considerable research remains to be conducted on these applications before they could be approved. In general, it seems reasonable to expect that the developers of these technologies should bear the costs (private funding, grants, public offerings) of demonstrating safety, efficacy, and effectiveness without expectation of reimbursement from Medicare.

d. Applications Using New and Untested Technologies Adapted for Telemedicine: Applications in this category (e.g., the use of telerobotic laparoscopic technology or virtual reality interfaces for surgery) should be considered experimental or investigational, and should not be covered until their value has been demonstrated by sufficient methodologically sound research.

e. Teleradiology: Teleradiology is already covered by Medicare and other payers, although because these services cannot be identified from claims data it is impossible to estimate the volume of such services. In order to track teleradiology, we recommend establishment of a separate identifier for teleradiology (probably a modifier) that would permit tracking of the use of this application from claims data.

3. Restrictions on Coverage

We previously discussed placing restrictions on coverage in the context of demonstrating the effectiveness of certain applications. Other kinds of restrictions might be used in order to control costs and utilization, in part to allow time to assess the effects of telemedicine coverage on health care expenditures as reimbursement is phased in. It might also be the case that a policy decision is made to permit coverage only for specific groups or regions (rural or frontier areas, for example). For further discussion of this issue see Report 3 under this contract.

D. PAYMENT POLICY AND TELEMEDICINE

1. Introduction

In addressing payment policy, we will discuss several issues. These include coding, provider characteristics, number of providers to be paid, relative value units, geographic variation, payment methods for different applications, and payment rates. In this discussion we will focus primarily on payment for Medicare Part B services.

2. Coding

Coding of telemedicine services is not as straightforward as it might at first appear. For example, the arrangement between the Medical College of Georgia and the local fiscal intermediary involves five initial service codes and four follow-up codes for physician services utilizing telemedicine. Under this scheme, telemedicine was treated as a single entity. We contend that different applications should be coded differently, and so the approach we favor is somewhat more complex.

a. Comparability of Telemedicine and Conventional Medical Care: It has not been established that telemedicine is strictly analogous to conventional care delivery. While many of the same processes take place regardless of the mode of care, some aspects of the physical exam (e.g., palpation) cannot yet be done remotely, and must be done by a provider who is present with the patient. Anecdotal evidence suggests that telemedicine consults may take either more or less time than face-to-face consultation, but so far no data are available on this with respect to specific processes of care.

b. Approaches to Coding: We recommend that one of two approaches be taken to this problem. First, using methodology like that utilized in establishing a Resource-Based Relative Value Scale (RBRVS), telemedicine could be compared with conventional care delivery. This should not be done across all applications, but should be done within each of the application categories recommended in Report 4 (e.g., management of chronic diseases, medical follow-up). Second, a combination of qualitative and quantitative research might be conducted on the process of telemedicine consultation (again, by category of application), and the findings compared with face-to-face care delivery.

If it is established that telemedicine and face-to-face care differ little in terms of time, effort, or complexity, it seems reasonable to use current CPT codes for telemedicine services, appending a modifier that would indicate the use of telecommunications technology. If instead it is found that the two approaches differ significantly from one another (again, within categories of application), different CPT codes should be established for telemedicine, using the RBRVS process.

In examining the categories of applications discussed in Report 4, it should be clear that different approaches to coding should be established for many of these. For example, the review of still images is a fundamentally different process than interactive video examination. Still images do not need to be examined in real time, and could be transmitted using a store and forward system. It seems reasonable to approach dermatologic images, for example, in much the same way that Medicare pays for the interpretation of radiologic images, if the dermatologist needs only to see the images and does not require a real-time exam. Surgical follow-up might be included in the surgeon's global surgery fee, and could be distinguished as telemedicine by a simple modifier. Psychiatric evaluation using interactive television, on the other hand, may be sufficiently unique that it should have its own set of codes.

Although the evidence for abuse by "code creep" is somewhat equivocal, we would nevertheless recommend that a given application with several levels of complexity be classified into fewer levels rather than more. Thus a routine consultation for a second opinion with a new patient might be coded as "brief," "intermediate," or "comprehensive," and the levels should be defined with reference to standard telemedicine procedures. The use of five levels, for example, might make classification somewhat less clear, and encourage use of the higher levels.

3. Who Should be Paid?

The scheme for payment worked out between the Medical College of Georgia and the local fiscal intermediary involves payment of both the primary care physician (who must be present at the referring site) and the consultant. In ordinary consultation, the primary care provider is not present. The Georgia approach is not cost-effective, and represents a change in the way medicine is usually practiced.

It seems reasonable to pay a primary care provider when he or she has sought an urgent consult, and may already be doing billable work as part of an initial patient exam. It does not seem reasonable for a primary care physician to refer a patient for teleconsultation, and on another occasion be paid for his or her presence during an examination by a consultant. In some cases, a provider will not be necessary with the patient at the referring site. This would be the case in many instances of psychiatry, for example. In other cases, some provider will need to be present in order to assist in the conduct of a thorough physical exam. In these instances, it seems reasonable that a facility could be reimbursed for providing the services of a nonphysician provider at the referring site who participates in the examination. The amount reimbursed each participant in the consultation should be a function of the time, effort, complexity, and responsibility of each participant. As we noted above in the section on coding, this might be established using a standard RBRVS procedure, or on the basis of qualitative and quantitative research on telemedicine consultation.

When consultations are performed between physicians without the patient being present, different approaches might be taken. First, it should be recalled that this approaches the "curbside" or telephone consult in many respects, so that coverage for these contacts may raise a number of difficult questions. Nevertheless, with the establishment of appropriate policies, this may be a cost-effective means of consultation. In such cases, it may be reasonable to reimburse both physicians, but at a rate that accurately reflects the time and effort involved. Since there is no patient exam, one would anticipate that the payment for this kind of consult would be less than for face-to-face consultation, especially for the primary care provider.

In general, we recommend against payment for consultations that involve similar providers at both referring and consulting sites. For example, a nurse practitioner at a remote outpatient clinic might be able to obtain consultation from an internist at a tertiary care facility, but not from another nurse practitioner. A specialist (e.g., neurologist) might be able to refer a patient to a subspecialist (e.g., epileptologist), but the specialist would not necessarily be eligible for payment if the consult were conducted with the patient present (see above).

When there is no need for a provider at the referring site to assist during the teleconsultation, only the provider at the consulting site should be paid. It may be that a physical therapist (PT) is prescribing therapeutic exercises for a stroke patient and is able to do this with only the patient at the other end. If, however, the patient is unlikely to remember the exercises, or if the therapist will require some assistance in assessing tone or range of motion, a nurse or PT aide may be able to assist in the consult, and there should be some reimbursement for her or his services.

4. **Approaches to Payment**

Although many approaches to payment are possible, methods of payment for Part B services include fee-for-service payment to the involved providers and capitated payments for providers. There may also be facility fees for telemedicine services, DRG inclusion for inpatient hospital telemedicine services, and bundling. We recommend that variations in existing payment approaches be empirically evaluated and that demonstrations test new payment approaches as telemedicine services and technologies are evolving.

a. Fee-for-Service Payment to Physicians: Fee-for-service payment provides little incentive to control utilization. Applied to new technologies it may lead to overutilization and increased health care expenditures. Nevertheless, both inpatient and outpatient telemedicine consultation are likely to be reimbursed on this basis.

For the work component of physician fees, it will probably be necessary to establish relative values for these services. Such changes could probably be made using the current Medicare update and refinement process, without the need for new time studies. The physician practice expense component of the fee schedule might be adjusted to reflect the costs of purchasing and using the telemedicine equipment (including line charges, which vary markedly in different regions of the country and even within single states). There appear thus far to have been no malpractice claims arising out of telemedicine, and it is impossible at this time to determine whether the malpractice component of fees should be adjusted. It therefore seems reasonable not to alter that component until greater experience with telemedicine provides sufficient data upon which to make such decisions.

The usual approach of assignment of benefits for participating providers should be applied to telemedicine.

b. Alternatives to Simple Fee-for-Service Payment: Competitive contract bidding is another option to reduce costs, especially as the number of telemedicine programs increases significantly. At the current time, there are few areas that are served by more than one telemedicine program, so it may be some time before this would be a workable method. Over the next several years, however, it may be that some programs become major regional or national players in the telemedicine market, and competitive bidding, such as has been done with California Medicaid (Medi-Cal) contracting hospitals, may be a reasonable way to deal with payment.

While telemedicine could be included in a capitated health care system, it might also be possible to make a capitated payment for telemedicine services themselves. A single payment might be made to a facility or provider, and distribution of that payment among the various participants (and to cover the costs of line access and equipment) would be at their discretion. This would eliminate the need for Medicare to address some of the issues regarding the relative value scale, instead placing the onus on providers. Certain *a priori* restrictions might be placed on the numbers and types of providers that could be involved, and utilization could be monitored in a standard manner.

c. Geographic Differentials in Reimbursement: Although telemedicine is being hailed as a provider of care to rural areas, it is likely that many frontier and other rural areas have too small a population base (and hence too low a volume of referrals) to permit rural providers and facilities to maintain infrequently used telemedicine equipment. Some consideration should thus be given to possible differential reimbursement rates as a function of geographic location. These might take the form of bonus payments, possibly to both providers and facilities. Medicare might also make larger payments for remote areas that have few providers, perhaps considering this as part of the practice

component of physician payment. If the rationale for covering telemedicine is in large part to increase access to care in rural areas, this is an important issue that must be addressed from the outset. Otherwise, telemedicine programs in rural areas are likely to have their financial support withdrawn unless they maintain a sufficient volume.

It seems logical to have payment rates based on the location of the provider(s). Thus, assuming that a urologist in a metropolitan tertiary care center did a cystoscopy via telemedicine for a patient in a rural hospital, the urologist should be paid according to his or her location, while the individual who inserted the scope at the remote site (perhaps a primary care physician) would be paid the fee appropriate for rural providers, for that level of service.

d. Facility Fees for Telemedicine Services: Many providers of telemedicine services are currently lobbying for facility fees for use of telemedicine equipment. Under one scenario, a telemedicine consult would yield a fee for the consultant and the primary care physician, and facility fees for both the rural and hub sites. When one considers that using conventional health care delivery results in only the consultant fee being paid, it is clear that Medicare expenditures could increase significantly.

If access is a primary policy objective, facility fees might be linked to volume of services, with centers providing fewer telemedicine services receiving a higher fee (although this could encourage the spread of low-volume telemedicine programs, with possible outcome quality effects). Facility fees might also be paid only to rural hospitals or clinics. Because small rural hospitals have less opportunity to use their equipment (and thus pay for it) than might hospitals in areas with a larger population, the equipment is essentially more costly for them to purchase and maintain. If desired, this could be dealt with by means of adjusting facility fees for geographic, demographic, and case-mix factors.

An alternative approach would be to provide no service-based facility fee, but to adjust the capital component of Medicare hospital reimbursement to reflect the availability and utilization of telemedicine. An annual payment to each facility could also be negotiated for capital costs and operating expenses. This payment might be independent of volume, in order to avoid some of the concerns discussed above. A negotiated payment would be superior to a retrospectively determined cost reimbursement since the latter might encourage facilities to purchase unnecessarily expensive equipment, and not to make efforts to cut costs in a reasonable manner. This approach might tentatively be considered a temporary means of supporting telemedicine programs until they develop greater volume. If the claims of cost-effectiveness made by telemedicine proponents are accurate, the need for such payments ought to decrease over time.

For the use of still images in consultation, an approach similar to that taken with radiology might be appropriate. That is, the physician would receive a fee for interpretation of the image(s), and a second fee might be paid for the use of the equipment.

e. Inclusion of Inpatient Telemedicine Services in DRG Payments: In some cases, a patient in a rural community hospital may be provided a consult with an urban specialist via telemedicine. For this Part B service, the consultant would ordinarily be paid on a fee-for-service basis. It might, however, be possible to include a single bundled payment to the hospital under the Prospective Payment System (PPS), which could then be distributed appropriately. This would simplify tracking billings if providers at the hospital were to be paid as well as the consultant, and this approach would work particularly well for providers at different sites that are part of a single health care system. Standard DRG payments are already adjusted according to geographic region and urbanization, and some adjustment of the non-labor component of these rates might be made for rural hospitals that are part of a telemedicine network.

f. Capitation: Telemedicine services can be included as part of a benefit package covered under a capitation payment rate. This would be a viable approach for Medicare HMOs. The organization receiving the capitation payments has financial incentive to avoid overutilization of telemedicine. However, the value of services provided by telemedicine should be reflected by appropriate levels of capitation payments. The quality of care may be improved by telemedicine through, for example, the provision of regular follow-up contact between specialists and patients with chronic disorders.

E. SUMMARY: COVERAGE AND PAYMENT POLICY FOR TELEMEDICINE

Although effectiveness is questionable for some applications of telemedicine, it seems reasonable for Medicare to provide coverage for a wide range of telemedicine services. In this paper we have addressed several specific categories of effective applications, and have addressed issues regarding payment methods. There appear to be few alternatives to fee-for-service payment to most providers, although we suggested some alternatives that might be workable in different situations. We have also dealt with issues of who should be paid (provider types and numbers), and geographic differentials in reimbursement.

Regardless of the course chosen by Medicare, the issue will require research and refinement over the first several years to arrive at a rational approach to coverage and payment. It will also be important to consider some of the conceptual issues (especially coverage for telephone consultations) that complicate policy deliberations and decisions.

APPENDIX A

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